

Table 22. U.S. Methane Emissions from the Solid Waste of Domesticated Animals, 1990 and 1995-2003

Animal Type	1990	1995	1996	1997	1998	1999	2000	2001	2002	P2003
Thousand Metric Tons Methane										
Cattle										
Beef Cattle	176	210	209	204	200	198	195	194	194	193
Dairy Cattle	553	662	695	732	738	743	758	772	783	791
Swine										
Market Swine	879	1,111	1,070	1,171	1,199	1,147	1,141	1,156	1,155	1,168
Breeding Swine	152	165	160	169	163	152	152	151	147	145
Poultry										
Layers	72	79	80	81	83	86	88	89	90	91
Broilers	69	94	96	99	100	103	98	99	102	101
Other Animals										
Sheep	5	2	1	1	1	1	1	1	1	1
Goats	1	1	1	1	1	*	*	1	*	*
Horses	27	27	28	28	28	28	28	28	28	28
Total	1,934	2,351	2,340	2,485	2,512	2,458	2,462	2,491	2,501	2,517
Thousand Metric Tons Carbon Dioxide Equivalent										
Cattle										
Beef Cattle	4,037	4,838	4,814	4,682	4,592	4,547	4,496	4,470	4,454	4,433
Dairy Cattle	12,717	15,236	15,992	16,829	16,970	17,092	17,430	17,746	18,014	18,185
Swine										
Market Swine	20,217	25,547	24,610	26,922	27,579	26,377	26,248	26,585	26,573	26,860
Breeding Swine	3,502	3,788	3,681	3,893	3,739	3,488	3,507	3,470	3,390	3,338
Poultry										
Layers	1,663	1,814	1,838	1,871	1,913	1,979	2,016	2,052	2,076	2,082
Broilers	1,590	2,158	2,199	2,266	2,298	2,372	2,255	2,284	2,339	2,312
Other Animals										
Sheep	115	35	33	31	31	28	28	27	26	25
Goats	16	15	16	14	12	11	11	12	10	10
Horses	624	631	633	636	644	636	645	652	652	652
Total	44,481	54,063	53,818	57,144	57,777	56,531	56,636	57,298	57,534	57,897

*Less than 500 metric tons methane.

P = preliminary data.

Notes: Data in this table are revised from the data contained in the previous EIA report, *Emissions of Greenhouse Gases in the United States 2002*, DOE/EIA-0573(2002) (Washington, DC, October 2003). Totals may not equal sum of components due to independent rounding.

Sources: Population data for horses and goats extrapolated from U.S. Department of Commerce, Bureau of the Census, *Census of Agriculture*, 1982, 1987, 1992, and 1997. Population data for all other animals from U.S. Department of Agriculture, National Agricultural Statistics Service, Livestock, Dairy and Poultry Branch. Typical animal sizes from U.S. Environmental Protection Agency, Office of Air and Radiation, *Anthropogenic Methane Emissions in the United States: Estimates for 1990, Report to Congress* (Washington, DC, April 1993), p. 6-8; and U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2002*, EPA-430-R-04-003 (Washington, DC, April 2004), Table M-2, web site <http://yosemite.epa.gov/oar/globalwarming.nsf/content/ResourceCenterPublicationsGHGEmissionsUSEmissionsInventory2004.html>. Cattle sizes adjusted by annual slaughter weight from U.S. Department of Agriculture, National Agricultural Statistics Service, Livestock, Dairy and Poultry Branch. Maximum methane production, and waste management systems used from L.M. Safley, M.E. Casada, et al., *Global Methane Emissions from Livestock and Poultry Manure* (Washington, DC: U.S. Environmental Protection Agency, February 1992), pp. 24-27; U.S. Environmental Protection Agency, Cost Methodology Report for Beef and Dairy Animal Feeding Operations, EPA-821-R-01-019 (Washington, DC, January 2001), pp. 1-13-1-14; and U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2002*, EPA-430-R-04-003 (Washington, DC, April 2004), Table M-2. General methane conversion factors from Intergovernmental Panel on Climate Change, *Greenhouse Gas Inventory Reference Manual: Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, Vol. 3 (Paris, France, 1997), p. 4.25, web site www.ipcc.ch/pub/guide.htm. State methane conversion factors for dairy cattle from U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-1998*, EPA-236-R-00-001 (Washington, DC, April 2001); and U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2002*, EPA-430-R-04-003 (Washington, DC, April 2004), Table M-4.